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LABOR SAVING MACHINERY¹

By J. A. JENSEN

A change from steam to electrical pumping reduces the number of men required for operation. One motor tender and an assistant replace the firemen, coal passers, boiler cleaners, engineers and oilers required for steam pumping. In filter plants much of the machinery is power operated and automatic, requiring only supervisory attention. Auxiliary electrically driven pumps for booster service are automatically controlled by float switches in the standpipes. They are visited occasionally by the engineer for the purpose of inspection and lubrication.

Labor-saving machinery is required more and more each year because of the growing scarcity of labor. Trenching machines for water pipe laying, auto trucks for transportation and other kinds of machinery for the handling of earth and materials are labor-saving devices.

In 1913 the city of Minneapolis purchased a large trenching machine for use on several miles of trunk pipe lines. This machine put out 39,200 cubic yards of earth at a unit cost of 9.3 cents per cubic yard on about 3 miles of trench. On another piece of work a steam shovel on back-fill handled 23,730 cubic yards on 9250 feet of trench at a unit cost of 4.8 cents per cubic yard.

On work in limestone ledge, trenching for pipe laying, an air compressor and operator with two plug drills and two men replaced twenty men with hand drills. In laying steel pipe the same compressor with ten boiler makers equipped with the necessary riveting and calking hammers, reaming tools and other equipment carried on the work of a whole company of similar skilled labor with hand tools.

A single first-class power operated trench pump has been found to do as much work as three hand-operated pumps manned by a dozen laborers.

¹ Abstract of paper before the Minnesota Section, November 10, 1917.

In service work with miscellaneous jobs scattered over 40 or more square miles of territory, Ford runabout trucks are employed, each rig and two men, generally speaking, replacing three single-horse rigs and six men. This is explained by the fact that the principal part of the performance in street service is mileage, and the work itself is secondary so far as time element is concerned.